TECHNICAL NOTES
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Reducing Pulpwood Losses from Borer Attacks by Shading Conventional Pulp Piles

During extensive spring and summer cutting of spruce and balsam fir, care must be taken to prevent or minimize heavy wood-borer damage in the piled pulpwood. Generally, this can be done by either (1) peeling, (2) spraying with insecticides, or (3) removing the logs from the woods within a few days after cutting. At times, however, especially in a major operation, conditions are such that none of these methods can be used.

If heavy mortality of spruce and balsam fir follows the present epidemic outbreak of the spruce budworm (Choristoneura fumiferana (Clem.)) in northern Minnesota, extensive salvage operations will be necessary, or heavy losses of wood will result. In anticipation of this possibility, the Station established a study in 1958 to determine whether any particular method of piling pulpwood would protect the sticks from attack by wood borers.

Several balsam fir and a few white and black spruce trees were cut into the usual 100-inch sticks. The balsam fir sticks were piled into standard pulpwood piles (fig. 1) and modified pens (fig. 2). One pulpwood pile and one pen were set up in a small clearing; another of each was piled in the shade beneath living conifers. Supplementary piles containing 4 to 6 sticks of balsam fir or white and black spruce were placed in the clearing. Data from white and black spruce were not separated.

In this study the white-spotted sawyer (Monochamus scutellatus (Say)) caused over 95 percent of the insect damage. This suggests that prevention of Monochamus attacks would substantially reduce wood loss in pulpwood piles.

Monochamus females lay most of their eggs in pulpwood sticks on warm sunny days. Consequently the standard pile and the pen in the clearing were the most vulnerable to attack. The sticks on the interior of the standard pile, which were shaded and less accessible to the insects, averaged 19 larvae, while the exterior sticks averaged 182 larvae. Since the sticks of the pen were all exposed, they were equally susceptible to attack and averaged 182 larvae.

The standard pile in the shade averaged only 3 larvae per stick on the interior of the pile and 26 larvae in the exterior ones. This relationship was similar to the pile in the clearing but with about one-seventh the number of insects. The pen in the shade averaged only 16 larvae per stick.

Sticks sampled from the exterior of the small supplementary piles averaged 206 larvae in balsam fir and 378 in spruce.

To reduce borer attacks it is recommended that, whenever possible, pulpwood be piled in standard piles under the shade of standing trees if other preventive measures cannot be undertaken. In the absence of standing trees, when clear cutting is practiced, fresh boughs should be laid over the pile to provide the necessary shade. Spring- or summer-cut wood, piled in the forest, should be removed before the following spring; otherwise wood-infesting fungi become important.

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LOUIS F. WILSON, Entomologist

MAINTAINED AT ST. PAUL 1, MINNESOTA, IN COOPERATION WITH THE UNIVERSITY OF MINNESOTA

Figure 1.--Standard pulpwood pile of balsam fir sticks piled in the shade of standing trees.

Figure 2.--Modified pulpwood pen of balsam fir sticks piled in a clearing.